Amendments To the Claims:

Please amend the claims as shown.

1. (currently amended) A method for the evaluating and modifying the operating conditions of a machine or an installation, comprising the steps of:

measuring ~~for which~~ at least one parameter ~~is measured~~ a number of times~~,~~ to create a database, which comprises values $(x_1, y_1)$ to $(x_n, y_n)$ ~~$x_1, y_1 \ldots x_n \ldots y_n$~~ of the parameter;~~,~~

determining an extrapolation range, $x_s$; ~~with~~

performing an extrapolation in the range $x_s$;

determining a measure of quality, K, of the extrapolation ~~of an extrapolation being~~ calculated on the basis of the database wherein ~~with which the measure of quality~~ K is a function of at least two variables taken from ~~of~~ the group consisting of V, ΔI, S, C, with V being a ratio of the value range of the database to the extrapolation range, $x_s$ ~~xs,~~ which is determined by $x_s > x_1, x_n$, ~~$x_s > x1, x_n$,~~ with ΔI being the x uncertainty of the adjustment curve in the x direction, with S being continuity as a measure of the change in the y values in the database and with C being the time constancy of the extrapolation; and

controlling the parameter value so that the value will be retained within a limit.

2. (currently amended) A method according to Claim 1, wherein the value of ~~evaluation of the operating conditions is used to influence~~ the parameter is controlled ~~accordingly~~ based on the measure of quality K.

3. (currently amended) A method according to Claim 1, wherein the evaluation of the operating conditions increases the operational dependability of the machine ~~1~~ or the installation, by influencing the parameter accordingly based on the measure of quality K.

4. (previously presented) A method according to Claim 1, wherein the evaluation of the operating conditions is used to optimize the operation of the machine or the installation.

5. (currently amended) A method according to Claim 3, wherein a limit value is predetermined for the parameter and a period is determined in which the limit value of the parameter is not to be exceeded.

6. (previously presented) A method according to Claim 1, wherein the variables are selected so that the measure of quality K does not depend on the gradient of an adjustment curve in respect of the database.

7. (previously presented) A method according to Claim 1, wherein the measure of quality K is standardized, in particular by $1\text{-}e^{-K}$.

8. (previously presented) A method according to Claim 7, wherein the measure of quality K is standardized to a value range of 0 to 100%.

9. (previously presented) A method according to Claim 1, wherein the measure of quality K is defined by:

$$K = \frac{V * \Delta I}{S * C}.$$

10. (currently amended) A method according to Claim 1, wherein the ratio V of the value range of the database is defined by $(x_n\text{-}x_1)/(x_S\text{-}x_1)$. ~~$(X_n\text{-}X_1)/(X_S\text{-}X_1)$.~~

11. (previously presented) A method according to Claim 1, wherein:

the database is divided into at least three segments;

a mean value $g_1$, $g_2$, $g_3$ and a linear adjustment function $y_1$, $y_2$, $y_3$ with gradients $c_1$, $c_2$ and $c_3$ are each calculated for each segment from the database;

a numerical curvature measure p, whereby $p = g_1 - 2*g_2 + g_3$ is calculated, which reflects the current direction of curvature of the gradient pattern;

from a curve repertoire of curve types at least of the group:

| | |
|---|---|
| Linear function | -> $f(x) = y = a_0 + a_1*x$ |
| Potency function | -> $f(x) = \ln y = \ln a_0 + a_1*\ln x$ |
| Logarithmic function | -> $f(x) = y = a_0 + a_1*\ln x$ |
| Exponential function | -> $f(x) = \ln y = \ln a_0 + a_1 x$ |

that curve type of the adjustment function is selected iteratively and adjusted in respect of the value range of the entire current database,

with the curve type selected from the curve repertoire having to satisfy the following conditions;

the direction of curvature of the curve, which is determined from the extrapolation, must correspond to that of p

and

the quotient $Q_k$ of numerator (= if necessary weighted mean of the distance squares between measurement values and extrapolation curve) and denominator (= mean square of the y value range of the extrapolation curve in the area of the data window) must be minimal:

$$Q_k = f(k) = \frac{\sum w_i * (y_i(x_i) - f_k(x_i))^2}{y^2_{mitt_k} * \sum w_i} = \min \text{ (i = 1 ...min)}$$

where k is a numerator of the available extrapolation curve types (curve repertoire)

in particular $y^2mitt_k = [(ymax_k + ymin_k)/2]^2$,

with $Y_i(x_i)$ being the measurement value at point $x_i$,

with $f_k(x_i)$ being the function value of the kth extrapolation curve type at point $x_i$,

with $w_i$ being a weighting factor for each individual measurement value or for all measurement values of a segment;

so that the continuity S is calculated as follows:

$$S = \frac{\sum \gamma_i * (C_i - O_i)^2}{\sum \gamma_i};$$

with i = 1...3 being the numbering for the segment areas,

with $\gamma_I$: weighting factors 1...n,

with $O_1$ to $O_3$ being the gradients of the selected kth curve ~~(36, 39, 42)~~ for the extrapolation in respect of each half segment width, and

with $C_1$ to $C_3$ being the gradients of the linear segment adjustments.

12. (currently amended) A method according to Claim 1, wherein determination of the x uncertainty includes: ~~is defined as follows:~~

selection of an extrapolation function, which can be transferred to linear structures~~, i.e. a selection is made at least~~ from the group consisting of

| | |
|---|---|
| Linear function | -> $y = a_0 + a_1 * x$ |
| Potency function | -> $\ln y = \ln a_0 + a_1 * \ln x$ |
| Logarithmic function | -> $y = a_0 + a_1 * \ln x$ |
| Exponential function | -> $\ln y = \ln a_0 + a_1 * x$, |

determination of a database ~~(6)~~,

with the database comprising n correlated x and y values

Calculation of $\bar{x}$ and $\bar{y}$ of the database and the variable $\sum x_i y_i$

Calculation of $S_{xy} = \frac{1}{n-1}\left(\sum x_i y_i - \overline{nxy}\right)$ (i = 1…n)

Calculation of $S_{x^2} = \frac{1}{n-1}\left(\sum x_i - \bar{x}\right)^2$ (i = 1…n)

Calculation of $S_{y^2} = \frac{1}{n-1}\left(\sum y_i - \bar{y}\right)^2$ (i = 1…n)

Calculation of a gradient $b = \frac{S_{xy}}{S_x^2}$

Calculation of $a = (n-1)\left(s_y^2 - b^2 s_x^2\right)$

Determination of an equation for a regression line

$y = \bar{y} + b(x - \bar{x})$

with a confidence factor $\gamma$, a variable F (c) is calculated according to

$F(c) = \frac{1}{2}(1+\gamma)$,

with F(c) and n-2 (n = number of measurement values) degrees of freedom, the t-distribution

(Student distribution) gives a value c,

Determination of $\Delta m$

$$\frac{c\sqrt{a}}{S_x\sqrt{(n-1)(n-2)}}$$

which gives an uncertainty of the gradient m:

$b - \Delta m \leq m \leq b + \Delta m$,

Determination of the straight line equations with the gradients $b - \Delta m$, $b + \Delta m$,

Determination of the points of intersection ($I_{min}$, constant) and ($I_{max}$, constant) of the straight line with a parallel (y = constant),

which corresponds to a limit value,

Determination of corresponding x values $I_{max}$ and $I_{min}$,

where $I_{max} > I_{min}$,

Calculation of $\Delta I = I_{max} - I_{min}$

13. (previously presented) A method according to Claim 11, wherein the value range of continuity S is in the range 0 and + ∞.

14. (currently amended) A method according to Claim 1, wherein the measure of quality K changes over time and ~~that~~ an evaluation of the time variance of the extent of extrapolation C is calculated as follows:

$$C = \frac{\sum \gamma_i * (K(t_l) - q(t))^2}{q^2_{mitt_K} * \sum \gamma_i}$$

with i being the number of iterations,

$q^2 mitt_k = [(qmax_K + qmin_K)/2]^2$

with $\gamma_i$ being a weighting factor.

15. (previously presented) A method according to Claim 2, wherein the evaluation of the operating conditions increases the operational dependability of the machine or the installation, by influencing the parameter accordingly based on the measure of quality K.

16. (currently amended) A method according to Claim 2, wherein ~~the~~ evaluation of the operating conditions <u>and controlling the parameter value</u> ~~is used to optimize~~ <u>optimizes</u> ~~the~~ operation of the machine or the installation.

17. (currently amended) A method according to Claim 9, wherein the ratio V of the value range of the database is defined by <u>$(x_n-x_1)/(x_S-x_1)$.</u> ~~$(X_n-X_1)/(X_S-X_1)$.~~